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**Data-Driven cross checks for $\nu_e$ selection efficiency in NOvA** ANNA HALL, Univ of Virginia, NOVA COLLABORATION — NOvA is a long-baseline neutrino oscillation experiment, designed to make precision neutrino oscillation measurements using $\nu_\mu$ disappearance and $\nu_e$ appearance. It consists of two functionally equivalent detectors and utilizes the Fermilab NuMI neutrino beam. NOvA uses a convolutional neural network for particle identification of $\nu_e$ events in each detector. As part of the validation process of this classifier's performance, we apply a data-driven technique called Muon Removal. In a Muon-Removed Electron-Added study we select $\nu_\mu$ charged-current candidates from both data and simulation in our Near Detector and then replace the muon candidate with a simulated electron of the same energy. In a Muon-Removed Decay-In-Flight study we identify muons that have decayed in flight in either detector and remove the muon, resulting in a sample of just electromagnetic showers. Each sample is then evaluated by our classifier to obtain selection efficiencies. Our last analysis found agreement between the selection efficiencies of data and simulation, showing that our classifier selection is generally robust in $\nu_e$ charged-current signal selection.

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